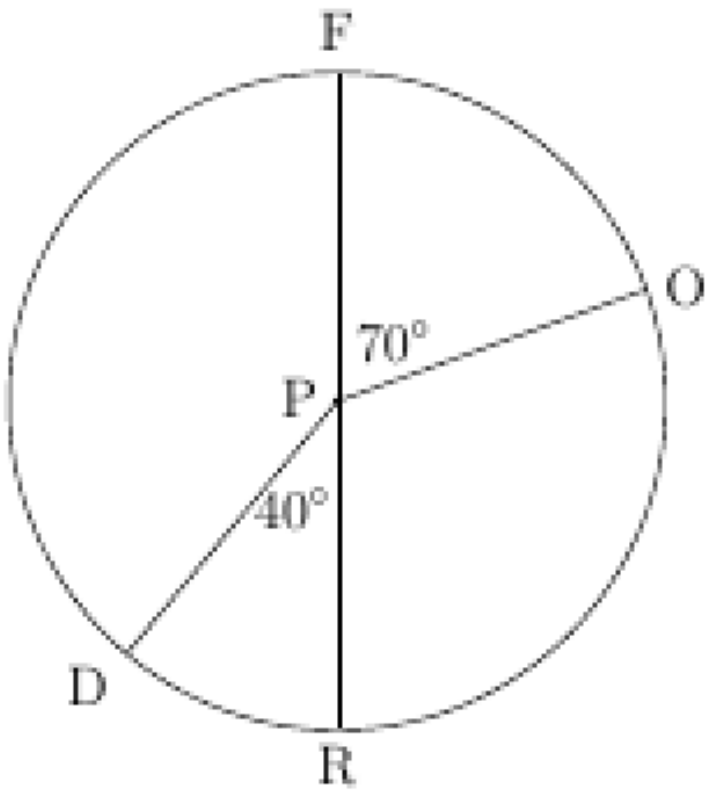
Topic: Degree measure of an arc of a circle

Question: Find the sum of the arcs.

$\overline{FR}$ is a diameter in circle P. What is the sum of arc OR and arc FD?



Answer choices:

A $110°$

B $140°$

C $250°$

D $360°$

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Solution: C

$\overline{FR}$ is a diameter, so the sum of arc FO and arc OR is $180°$.

$$FO + OR = 180°$$

$$70° + OR = 180°$$

$$OR = 110°$$

Likewise, the sum of arc FD and arc DR is $180°$.

$$FD + DR = 180°$$

$$FD + 40° = 180°$$

$$FD = 140°$$

The sum of these arcs is

$$110° + 140° = 250°$$

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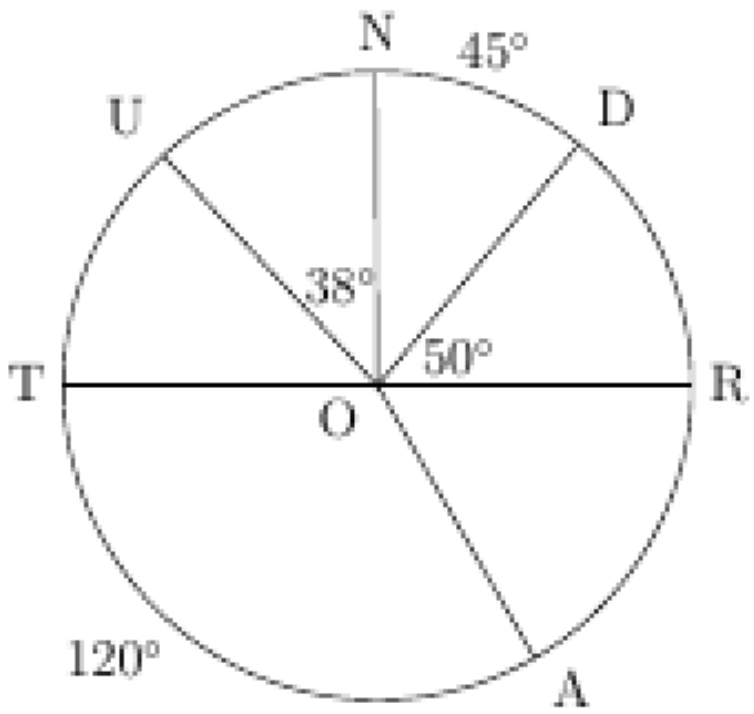
Topic: Degree measure of an arc of a circle

Question: Find the difference between the arcs.

$\overline{TR}$ is a diameter in circle O. What is the difference between arc AR and arc TU?



Answer choices:

A $82°$

B $38°$

C $22°$

D $13°$

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Solution: D

$\overline{TR}$ is a diameter, so the sum of arc TA and arc AR is $180°$.

$$TA + AR = 180°$$

$$120° + AR = 180°$$

$$AR = 60°$$

Likewise, the sum of arc TU and arc $(UN + ND + DR)$ is $180°$.

$$TU + UN + ND + DR = 180°$$

$$TU + 38° + 45° + 50° = 180°$$

$$TU + 133° = 180°$$

$$TU = 47°$$

The difference between arc AR and arc TU is

$$60° - 47° = 13°$$

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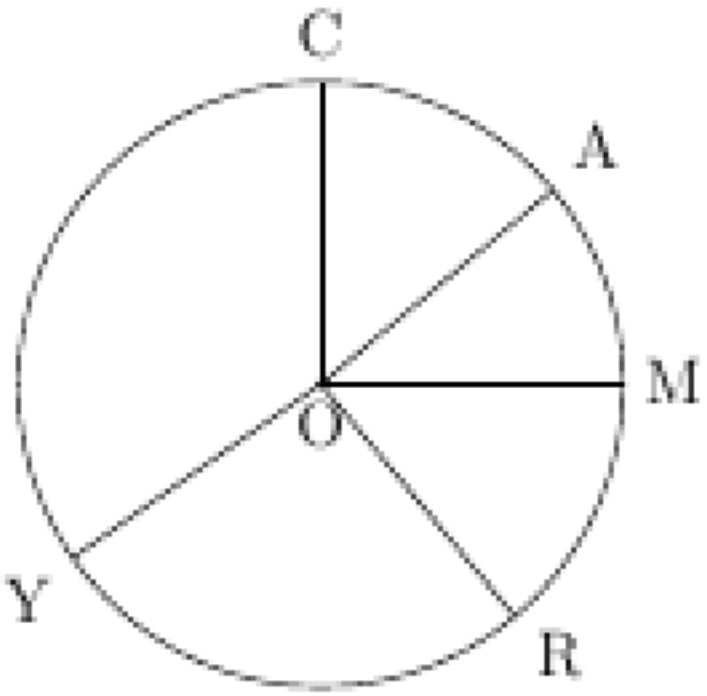
Topic: Degree measure of an arc of a circle

Question: Which arc is the largest?

$\angle COM$ and $\angle AOR$ are right angles. $\angle AOM = 40°$ and $\angle YOR = 100°$.



Answer choices:

A arc CR

B arc CMY

C arc ARY

D arc MCY

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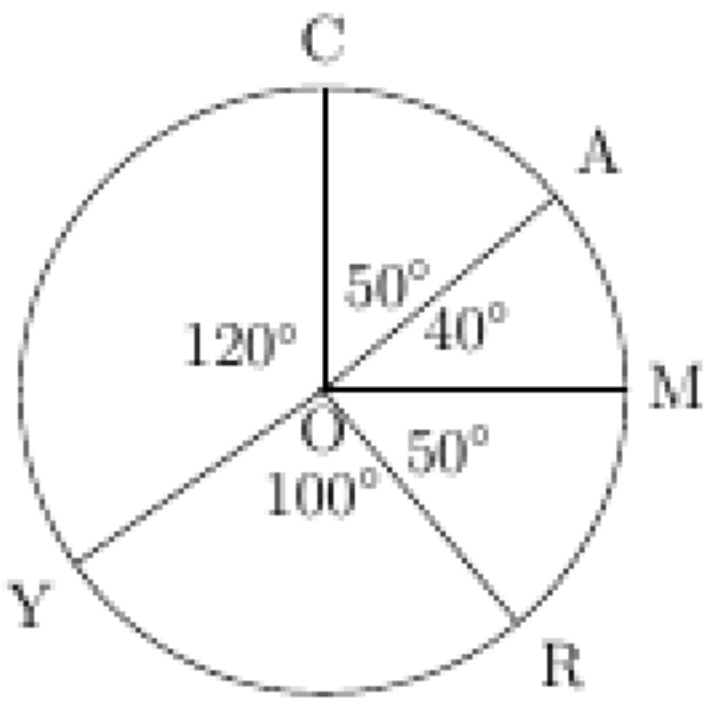
Solution: B

Use the fact that $\angle AOM = 40^\circ$ and that $\angle COM$ and $\angle AOR$ are each 90° to figure out that $\angle COA$ and $\angle MOR$ are each 50°.

Now you know four of the five angles: 50°, 40°, 50°, and 100°.



Subtract their total 240° from 360° to get $\angle COY = 120^\circ$.

Knowing all five central angles, you can figure out the measure of each arc.

$$\text{arc } CR = 50^\circ + 40^\circ + 50^\circ = 140^\circ$$

$$\text{arc } CMY = 50^\circ + 40^\circ + 50^\circ + 100^\circ = 240^\circ$$

$$\text{arc } ARY = 40^\circ + 50^\circ + 100^\circ = 190^\circ$$

$$\text{arc } MCY = 120^\circ + 40^\circ + 50^\circ = 210^\circ$$

Of these, arc CMY is the largest.

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